

**SAS Superstructure**

Location: 04-SF-80-13.2 / 13.9

Client Name: CalTrans

Run date 21-Nov-14

Time 11:24 PM

**Daily Diary Report by Bid Item**

Contract No.: 04-0120F4

Diary #: 545 Const Calendar Day: 939 Date: 04-Apr-2012 Wednesday

Inspector Name: Bruce, Matt Title: Transportation Engineer

Inspection Type: Intermittent

Shift Hours: 03:30 am 04:00 pm Break: 00:30 Over Time: 04:00

Federal ID:

Location:

Reviewer: Schmitt, Alex

Approved Date:

Status: Submit

**04-0120F4  
04-SF-80-13.2/13.9  
Self-Anchored  
Suspension Bridge****Weather****Temperature** 7 AM 40 - 50 12 PM 50 - 60 4PM 50 - 60**Precipitation** 0.02"**Condition** Overcast to partly cloudyWorking Day ☐ If no, explain:**Diary:**

Dispute

**Work description.**

- John Lyons, Sami Dauok, Damon Brown, Phil Latasa, and myself checked the out to out distance for the cable strands today as Damon's and my measurements are tabulated below. Damon and I were responsible for both the north/south sidespans and west-loops. Damon assisted me with the measurements and tabulating the data as I took all of the measurements unless otherwise noted. I used the Victor Tree Gauge (#2) to take the out to out measurements of the cable strands. Sami and Phil were responsible for checking the north/south mainspans today.

All measurements by both crews were reported to John who was stationed in the Caltrans conex recording and analyzing the data. When all of the measurements were completed, John was responsible for reviewing the measurements with ABF engineer Zach Lauria. See John's diary for more details related to the acceptance or rejection of cable strand sag adjustment.

The digital thermometer was used to measure both the ambient and steel temperatures. The green dual thermometer and anemometer was used to check the ambient temperature and wind speed. The steel temperature measurements were taken with the digital thermometer placed on the outer cable strand wires. Wind speeds were also obtained from weather.com at the time of the measurements.

The official sunrise time per weather.com for San Francisco today was at 6:50am. The following measurements were taken of the relative sag from cable strand number 1 at the given times below:

// North Sidespan //

Time = 4:25am

Ambient Temperature = 46.9F

Condition = Partly cloudy

Wind = NNW @ 10mph

ABF Surveyor(s) = James Allen and Ken Woon

Caltrans Engineer(s) = Matt Bruce and Damon Brown

Cable Strand (mm)	Steel Temperature (F)	O-O (#2) CT / ABF (mm)	Theor (mm)	CT Delta
1	47.6	Baseline or Zero	78	0
123	N/A	878 (-61) = 817 / N/A	829	- 12
129	47.4	817 +127 = 944 / 943	832	+ 112
130	47.4	817 +194 = 1011 / 1013	897	+ 114
131	46.7	791 (-61) = 730 / 731	640	+ 90



## Daily Diary Report by Bid Item

Job Name: 04-0120F4

Inspector Name Bruce, Matt

Diary #: 545

Date: 04-Apr-2012

Wednesday

Comments: All cable strands were considered to be free-hanging at the time of measurement on the north sidespan. I took all of the measurements while Damon assisted me with setting up the targets, being level, normal to cable, etc. A timber block was used on cable strand number 1 to obtain measurements where the dimension is in ( ) millimeters. Cable strand number 132 was floated and 133 was in the rollers at the time of measurements. Cable strand numbers 129 and 130 were too high to measure with the Victor Tree gauge (#2) scale. Therefore a torpedo level, target on 123, and a stick tape was used to measure up 127mm and 194mm between the two strands.

// South Sidespan //

Time = 5:05am

Ambient Temperature = 45.9F

Condition = Partly cloudy

Wind = NNW @ 10mph

ABF Surveyor(s) = James Allen and Ken Woon

Caltrans Engineer(s) = Matt Bruce and Damon Brown

Cable Strand (mm)	Steel Temperature (F)	O-O (#2) CT / ABF (mm)	Theor (mm)	CT Delta
1	47.4	Baseline or Zero	78	0
128	45.6	822 (-61) = 761 / 760	760	+ 1
129	45.6	938 + 30 (-61) = 907 / 907	827	+ 80
129*	45.6	893 (-61) = 832 / 836	827	+ 5
130	45.6	907 + 92 = 999 / 1005	894	+ 105
130*	45.6	943 + 20 (-61) = 902 / 910	894	+ 8
130*	45.6	951 (-61) = 890 / 895	894	- 4
131	46.0	727 (-61) = 666 / 660	627	+ 39
131*	46.0	687 (-61) = 626 / 632	627	- 1

Comments: All cable strands were considered to be free-hanging at the time of measurement on the south sidespan. I took all of the measurements while Damon assisted me with setting up the targets, being level, normal to cable, etc. A timber block was used on cable strand number 1 to obtain measurements where the dimension is in ( ) millimeters. Cable strand number 132 was floated and 133 was in the rollers at the time of measurements.

Cable strand number 130 was higher than the Victor Tree gauge (#2) scale, therefore a torpedo level, magnetic target, and stick tape was used to obtain the measurement of 92mm between 129 and 130. Also since cable strand numbers 129 and 130 were higher than the Victor Tree gauge (#2) scale, the 30mm and 20mm increment on the target was read to obtain the measurement.

Immediately after preliminary measurements were taken on the cable strands on the south sidespan ABF began "Live-Adjustment". Once the cable strand was adjusted ABF surveyors would take a measurement followed by Caltrans engineers. Numbers amongst the two groups were compared to expedite final buy-off. Cable strand numbers with an \* next to it denote that the cable strand was measured after "Live-Adjustment".

The following is a summary of the cable strand release at the tower inspected by Daryoush Bahar where the calculated numbers were based off of my measurements:

CS#	Calc. Req Length at Tower (mm)	Meas. Length at Tower (mm)	Meas. Sag at Midspan (mm)
128	N/A	N/A	N/A
129	8.89-West	11-West	8.33-West
130	11.67-West	15-West	12.11-West
131	4.33-West	7-West	4.44-West

This table is a cross check using the theoretical sag ratio on the side spans of 1:9 to confirm measurements at the midspan.



## Daily Diary Report by Bid Item

Job Name: 04-0120F4

Inspector Name Bruce, Matt

Diary #: 545

Date: 04-Apr-2012

Wednesday

// North Sidespan //

Time = 6:00am

Ambient Temperature = 45.6F

Condition = Partly cloudy

Wind = NNW @ 7mph

ABF Surveyor(s) = James Allen and Ken Woon

Caltrans Engineer(s) = Matt Bruce and Damon Brown

Cable Strand (mm)	Steel Temperature (F)	O-O (#2) CT / ABF (mm)	Theor (mm)	CT Delta
1	46.9	Baseline or Zero	78	0
129	46.0	894 (-61) = 833 / 827	832	+ 1
130	46.2	923 +30 (-61) = 892 / 897	897	- 5
131	46.1	700 (-61) = 639 / 634	640	- 1

Comments: All cable strands were considered to be free-hanging at the time of measurement on the north sidespan. I took all of the measurements while Damon assisted me with setting up the targets, being level, normal to cable, etc. A timber block was used on cable strand number 1 to obtain measurements where the dimension is in ( ) millimeters. Cable strand number 132 was floated and 133 was in the rollers at the time of measurements. Since cable strand number 130 was higher than the Victor Tree gauge (#2) scale, the 30mm increment on the target was read to obtain the measurement.

Immediately after preliminary measurements were taken on the cable strands on the south sidespan ABF began "Live-Adjustment". Once the cable strand was adjusted ABF surveyors would take a measurement followed by Caltrans engineers. Numbers amongst the two groups were compared to expedite final buy-off.

The following is a summary of the cable strand release at the tower inspected by Daryoush Bahar where the calculated numbers were based off of my measurements:

CS#	Calc. Req Length at Tower (mm)	Meas. Length at Tower (mm)	Meas. Sag at Midspan (mm)
129	12.33-West	13-West	12.22-West
130	12.67-West	15-West	13.22-West
131	10.00-West	13-West	10.11-West

This table is a cross check using the theoretical sag ratio on the side spans of 1:9 to confirm measurements at the midspan.

- Since the modified Maletic gauge (#1) flat plate wasn't long enough anymore Sami and Phil deferred to myself and Damon to measure cable strands at the west-loop from here on out. At 6:25am myself and Damon proceeded to measure cable strands at the west-loop.

// South West-Loop //

Time = 6:30am

Ambient Temperature = 47.1F

Condition = Partly cloudy

Wind = NNW @ 7mph

ABF Engineer(s) or Surveyor(s) = None at this time

Caltrans Engineer(s) = Matt Bruce and Damon Brown

Cable Strand (mm)	Steel Temperature (F)	O-O (#1Y) CT (mm)	Theor (mm)	CT Delta
1	48.3	Baseline or Zero	80	0
129	47.8	865 (-121) = 744	764	- 20
130	47.8	946 + 30 (-121) = 855	859	- 4



## Daily Diary Report by Bid Item

**Job Name:** 04-0120F4

**Inspector Name** Bruce, Matt

**Diary #:** 545

**Date:** 04-Apr-2012

**Wednesday**

131

47.8

577 (-121) = 456

457

- 1

Comments: All cable strands were considered to be free-hanging at the time of measurement on the south west-loop. I took all of the measurements while Damon assisted me with setting up the targets, being level, normal to cable, etc. The ( ) denotes the fixed timber block (by ABF) to cable strand number 1 dimension in millimeters. Also since cable strand number 130 was higher than the Victor Tree gauge (#2) scale, the 30mm increment on the target was read to obtain the measurement.

// North West-Loop //

Time = 6:40am

Ambient Temperature = 47.1F

Condition = Partly cloudy

Wind = NNW @ 7mph

ABF Engineer(s) or Surveyor(s) = None at this time

Caltrans Engineer(s) = Matt Bruce and Damon Brown

Cable Strand (mm)	Steel Temperature (F)	O-O (#1Y) CT (mm)	Theor (mm)	CT Delta
1	48.3	Baseline or Zero	80	0
129	47.8	880 (-126) = 754	764	- 10
130	47.8	950 + 30 (-126) = 854	859	- 5
131	47.8	583 (-126) = 457	457	0

Comments: All cable strands were considered to be free-hanging at the time of measurement on the north west-loop. I took all of the measurements while Damon assisted me with setting up the targets, being level, normal to cable, etc. The ( ) denotes the fixed timber block (by ABF) to cable strand number 1 dimension in millimeters. Also since cable strand number 130 was higher than the Victor Tree gauge (#2) scale, the 30mm increment on the target was read to obtain the measurement.

- All of the prescribed measurements for the sidespans and west-loop were completed at 6:50am and conveyed to John. As mentioned in the comments section of the measurement tabulations, live adjustments were performed by ABF ironworkers. An adjustment would be made and then ABF surveyors and Caltrans engineers would measure the cable strand to verify the correct sag adjustment was done before moving on to adjusting another strand.

The east anchorage crew of ironworkers started at 3:30am and the crew of ironworkers at the tower saddle began their shift at 5:00am respectively. See Daryoush Bahar's diary for comments, measurements, labor, and equipment at the tower saddle. See Bob Brignano's diary for comments, measurements, labor, and equipment at the east anchorage.

- Analyzed the GPS measurements taken on cable strand number 124 of the South Sidespan uncompact cable strand bundle for cable bands located at panel points 9, 16, and 24 . To reiterate the reason for using GPS equipment is to check the marks placed by ABF surveyors and Caltrans engineers against bridge datum calculated to the top dead center of the compacted cable. However it should be emphasized that the controlling method/equipment will be using a steel tape for cable band layout and QA check.

- Continued to assess the steel taping operation to "rough" QA check the cable band location. The objective is to familiarize Caltrans engineers with this operation/survey, be efficient and timely when performing the same task on the compacted cable.

- Attended weekly Team Cable Tailgate Safety and staff meeting at noon in the Caltrans conex located on the E-Line OBG near the south mainspan catwalk anchorage.

- Continued to review the plans and submittals related to the cable bands. Continued to develop the inspection checklist for this item of work.





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- Wrote outstanding diaries and completed cable strand adjustment check sheets.

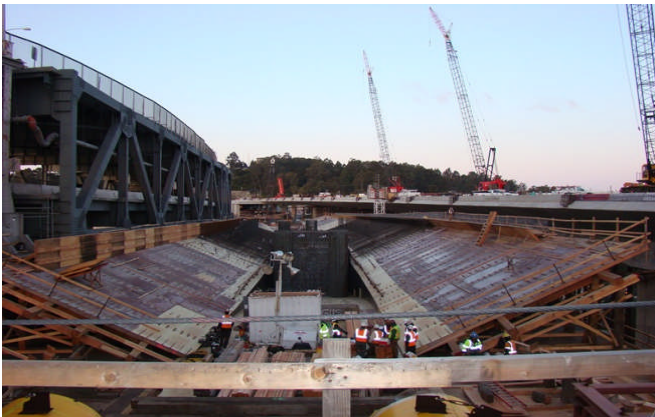
### Attachment



Configuration of the cable strands on the south side span while taking preliminary sag measurements.



Sunrise from the east seen from the south sidespan catwalk at the midpoint.



Progress of the E-Line YBITS bridge looking east seen from the W2 cap beam.



Configuration of the cable strands on the south side span while taking preliminary sag measurements.